

## CLAIMS

What is claimed is:

1. A method of assigning uplink scrambling codes for use by a user equipment in transmitting packet data over a random access channel in a code division multiple access system, the random access channel being time divided into super frames having a set of radio frames, each radio frame is time divided into a set of time slots, the method comprising:
- transmitting from the user equipment an access data packet using a selected signature out of a set of signatures and in a time slot of a radio frame;
  - identifying at a base station the selected signature, the transmission time slot and the transmission radio frame of the access data packet;
  - determining at the base station an uplink scrambling code for the user equipment based on in part the identified signature, transmission time slot and transmission radio frame;
  - selectively transmitting from the base station an acknowledgment message based on in part an availability of the determined uplink scrambling code; and
  - receiving the acknowledgment message at the user equipment and transmitting a subsequent data packet using the determined uplink scrambling code.
2. The method of claim 1 further comprising if the determined uplink scrambling code is unavailable, transmitting a negative acknowledgment to the user equipment.

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3. The method of claim 1 wherein the superframes have a set of 72 radio frames and each radio frame is divided into a set of eight time slots.

4. The method of claim 3 wherein the set of signatures numbers sixteen.

5. The method of claim 1 wherein the determined scrambling code is based on a function of the identified signature, transmission time slot and transmission radio frame.

6. The method of claim 1 wherein the random access channel is a common packet channel.

7. A method of assigning uplink scrambling codes for use by a user equipment in transmitting packet data over a random access channel in a code division multiple access communication system, the random access channel being time divided into time slots, the method comprising:

5 defining a maximum number L of sequential time slots over which a specific data packet can be transmitted;

defining a set of N predetermined scrambling codes for the common packet channel where  $N > L$ ; and

defining an association of the scrambling codes based on in part time slots, such that

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10 when one of the scrambling codes is associated with a specific time slot, the next L time slots are associated with different scrambling codes.

8. The method of claim 7 wherein L is a system design parameter and no packet may exceed L time slots.

9. The method of claim 7 wherein L is a number of time slots typically not exceeded by a data packet.

10. The method of claim 7 wherein L time slots contains a set number of sequential radio frames, each radio frame having a set number of time slots.

11. The method of claim 10 wherein the set number of sequential radio frames is eight and the set number of time slots in each radio frame is eight.

12. The method of claim 7 wherein the defined association repeats every L time slots.

13. The method of claim 7 wherein the random access channel is a common packet channel.

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14. A code division multiple access communication system using a random access channel for communication, the random access channel being time divided into super frames having a set of radio frames, each radio frame is time divided into a set of time slots, the system comprising:

5 a user equipment having:

means for transmitting an access data packet using a selected signature out of a set of signatures and in a time slot of a radio frame; and

means for receiving an acknowledgment message and transmitting a subsequent data packet using a determined uplink scrambling code; and

10 a base station having:

means for identifying the selected signature, the transmission time slot and the transmission radio frame of the access data packet;

means for determining the uplink scrambling code for the user equipment based on in part the identified signature, transmission time slot and transmission radio frame;

15 and

means for selectively transmitting an acknowledgment message based on in part the identified signature, transmission time slot and transmission radio frame; and

means for selectively transmitting an acknowledgment message based on in part an availability of the determined uplink scrambling code.

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15. The system of claim 14 further comprising means for transmitting a negative acknowledgment to the user equipment, if the determined scrambling code is unavailable.

16. The system of claim 14 wherein the superframes have a set of 72 radio frames and each radio frame is divided into a set of eight time slots.

17. The system of claim 16 wherein the set of signatures numbers sixteen.

18. The system of claim 14 wherein the determined scrambling code is based on a function of the identified signature, transmission time slot and transmission radio frame.

19. The system of claim 14 wherein the random access channel is a common packet channel.

20. A controller for assigning scrambling codes for packet data being transferred over a channel in a wireless code division multiple access communication system, the channel being time divided into time slots, the controller comprising:

5 means for defining a maximum number L of sequential time slots over which a specific data packet can be transmitted;

means for defining a set of N predetermined scrambling codes for the channel where

N > L; and

means for defining an association of the scrambling codes based on in part time slots, such that when one of the scrambling codes is associated with a specific time slot, the next

10 L time slots are associated with different scrambling codes.

21. The controller of claim 20 wherein the controller is used by a base station to assign uplink scrambling codes.

22. The controller of claim 20 wherein the controller is used by a user equipment to determine a scrambling code for uplink communications.

23. The controller of claim 22 wherein the uplink communications are data packets and the channel is a common packet channel.

24. The controller of claim 20 wherein L is a system design parameter and no packet may exceed L time slots.

25. The controller of claim 20 wherein L is a number of time slots typically not exceeded by a data packet.

26. The controller of claim 23 wherein L time slots contains a set of sequential radio frames, each radio frame having a set number of time slots.

27. The controller of claim 26 wherein the set number of sequential radio frames is eight and the set number of time slots in each radio frame is eight.

28. The controller of claim 20 wherein the defined association repeats every L time slots.

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